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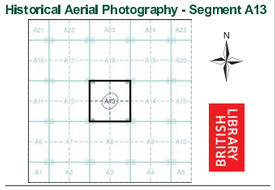
Historical Aerial Photography
Published 1946 - 1949
Source map scale - 1:1,250

The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,500 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's meant that every photograph was re-checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

Map Name(s) and Date(s)

Historical Aerial Photography - Segment A13

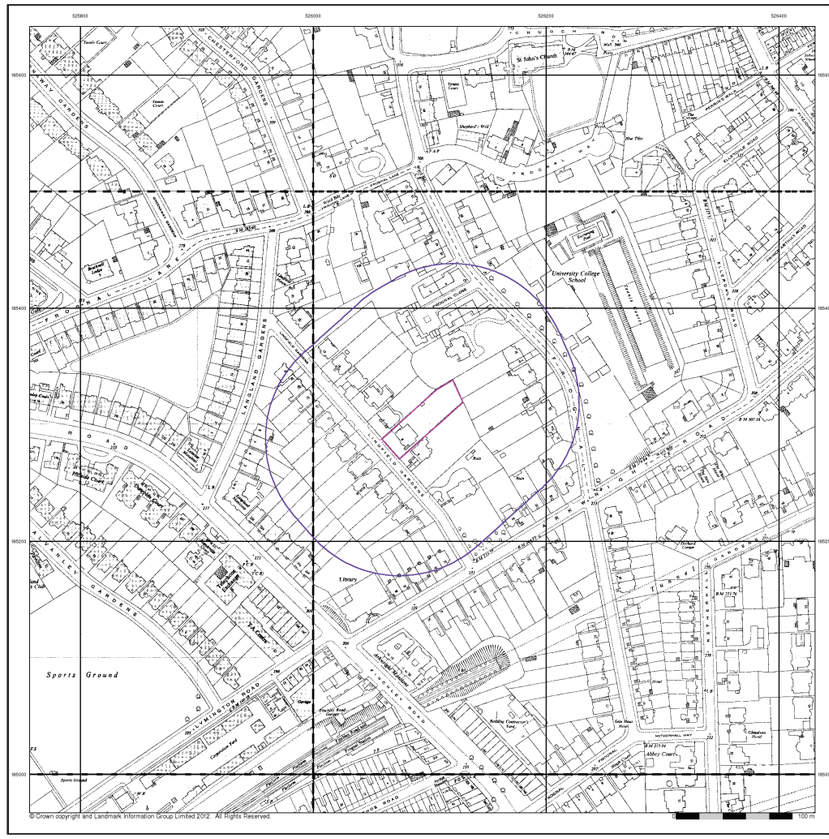


Order Details

Order Number:	44952871_1_1
Customer Ref:	13/20316
National Grid Reference:	526090, 185300
Slice:	A
Site Area (Ha):	0,18
Search Buffer (m):	100

Site Details
Flat 8, 11 Lindfield Gardens, LONDON, NW3 6PX

Landmark Information Group
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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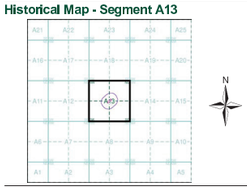
Ordnance Survey Plan
Published 1954
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1936, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

Historical Map - Segment A13



Order Details

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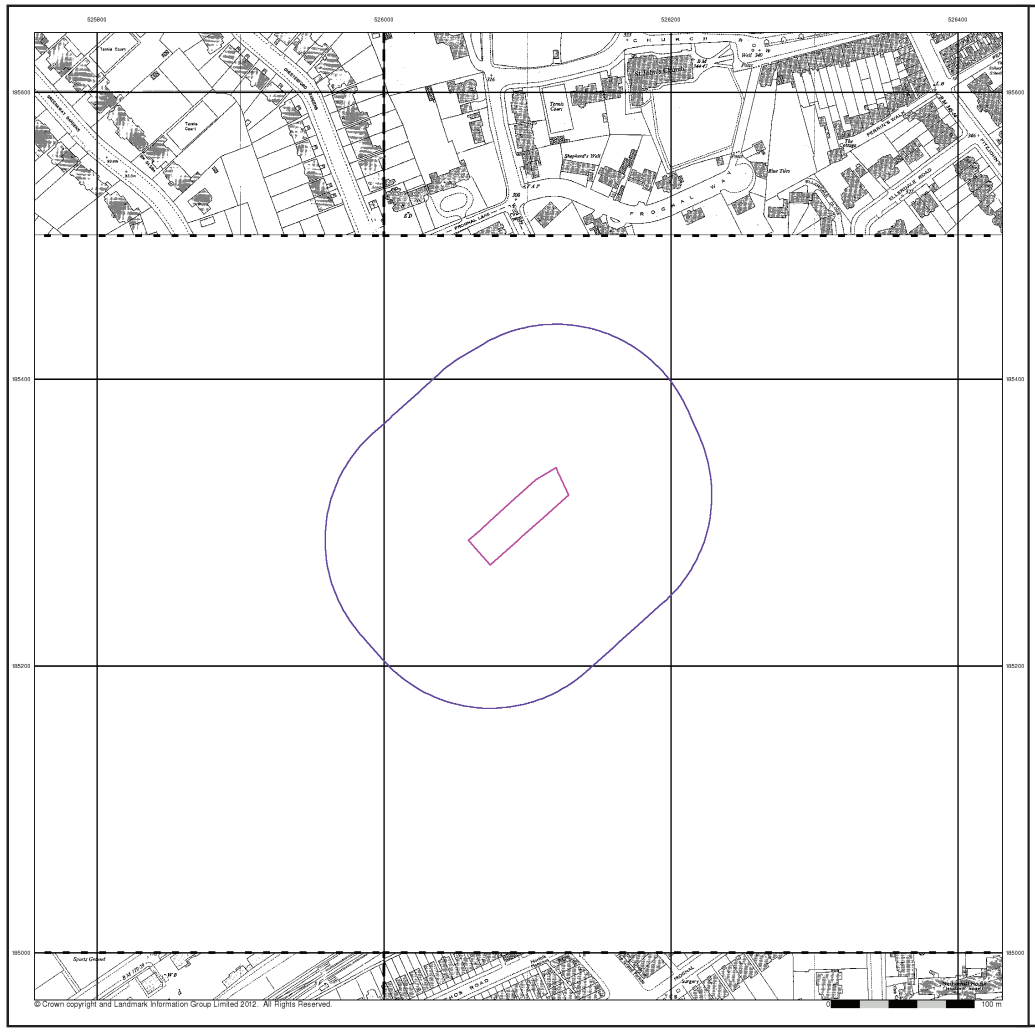


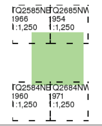
Additional SIMs

Published 1954 - 1971

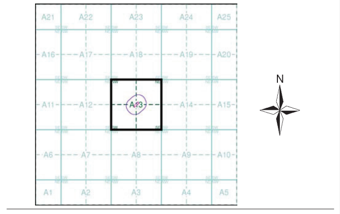
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 44952871_1_1
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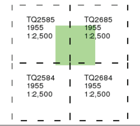
Ordnance Survey Plan

Published 1955

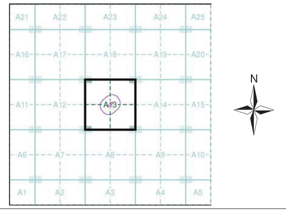
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 44952871_1_1
Customer Ref: 13/20316
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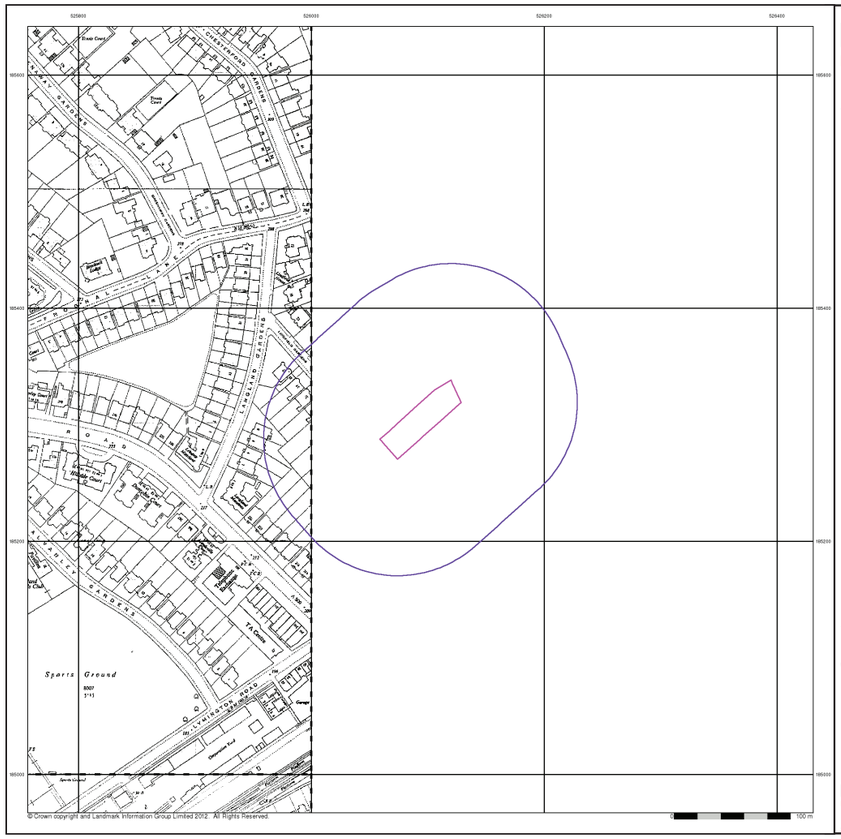

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Additional SIMs
Published 1955
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's "Survey of Information on Microfilm") are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

TQ2585
1955
1:2,500

TQ2584
1955
1:2,500

Historical Map - Segment A13

Order Details

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Ordnance Survey Plan
Published 1960 - 1971
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1936, all OS maps were based on the Cassini Projection, with independent surveys of a single country or group of countries, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

TQ2585NE 1966 1:1,250
TQ2585NW 1966 1:1,250
TQ2585SE 1971 1:1,250
TQ2585SW 1970 1:1,250
TQ2584NE 1960 1:1,250
TQ2584NW 1960 1:1,250

Historical Map - Segment A13

Order Details

Order Number:	44952871_1_1
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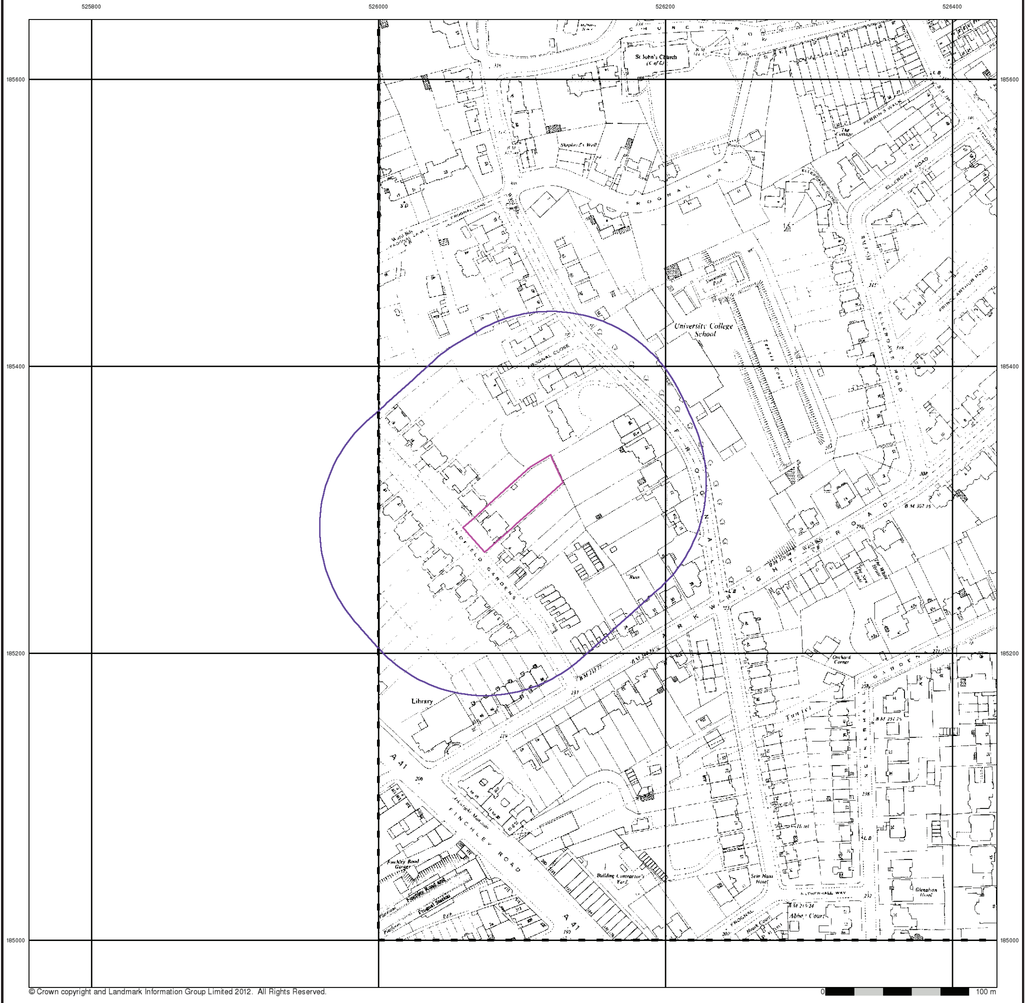
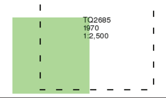


Envirocheck®

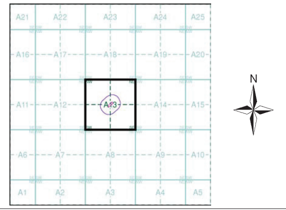
Ordnance Survey Plan
Published 1970
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 44952871_1_1
Customer Ref: 13/20316
National Grid Reference: 526090, 185300
Slice: A
Site Area (Ha): 0.18
Search Buffer (m): 100

Site Details

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Landmark® Information Group

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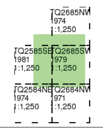
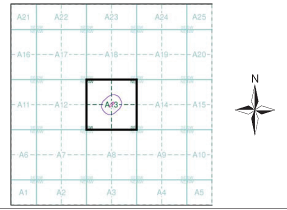
Ordnance Survey Plan
Published 1971 - 1981
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 44952871_1_1
Customer Ref: 13/20316
National Grid Reference: 526090, 185300
Slice: A
Site Area (Ha): 0.18
Search Buffer (m): 100

Site Details

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Landmark® Information Group

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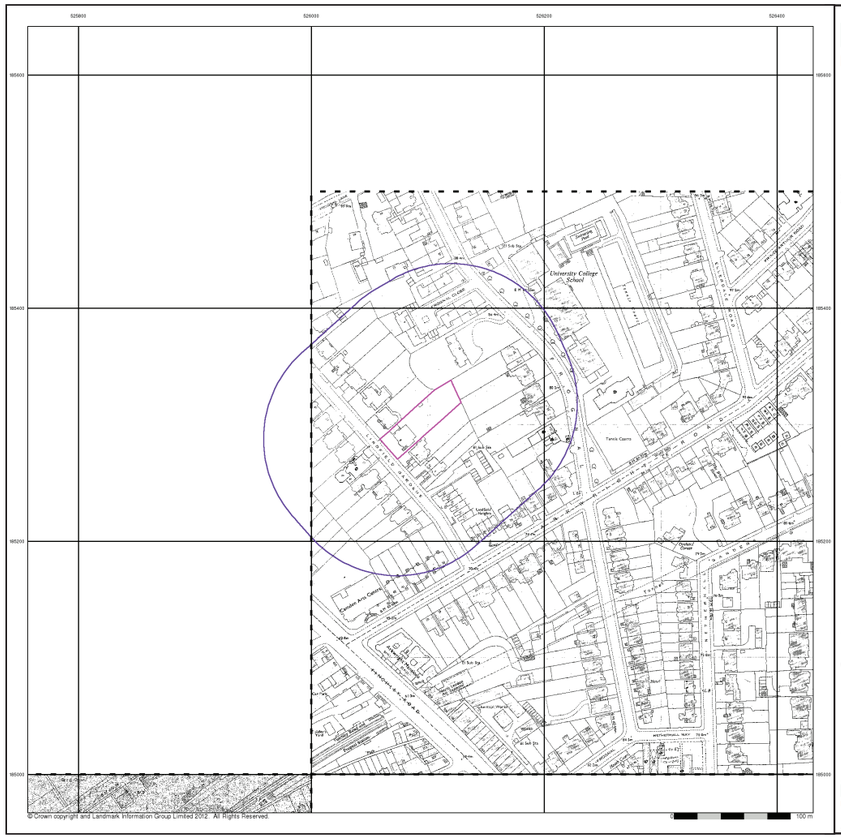


Envirocheck®

Supply of Unpublished Survey Information

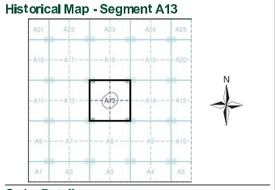
Published 1973 - 1974

Source map scale - 1:1,250

SUSImaps (Supply of Unpublished Survey Information) were produced between 1972 and 1977, mainly for internal use at Ordnance Survey. These were more of a "work-in-progress" plan as they showed updates of individual areas on a map. These maps were unpublished, and they do not represent a single moment in time. They were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

Historical Map - Segment A13



Order Details

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National Grid Reference:	526090, 185300
Slice:	A
Site Area (Ha):	0.18
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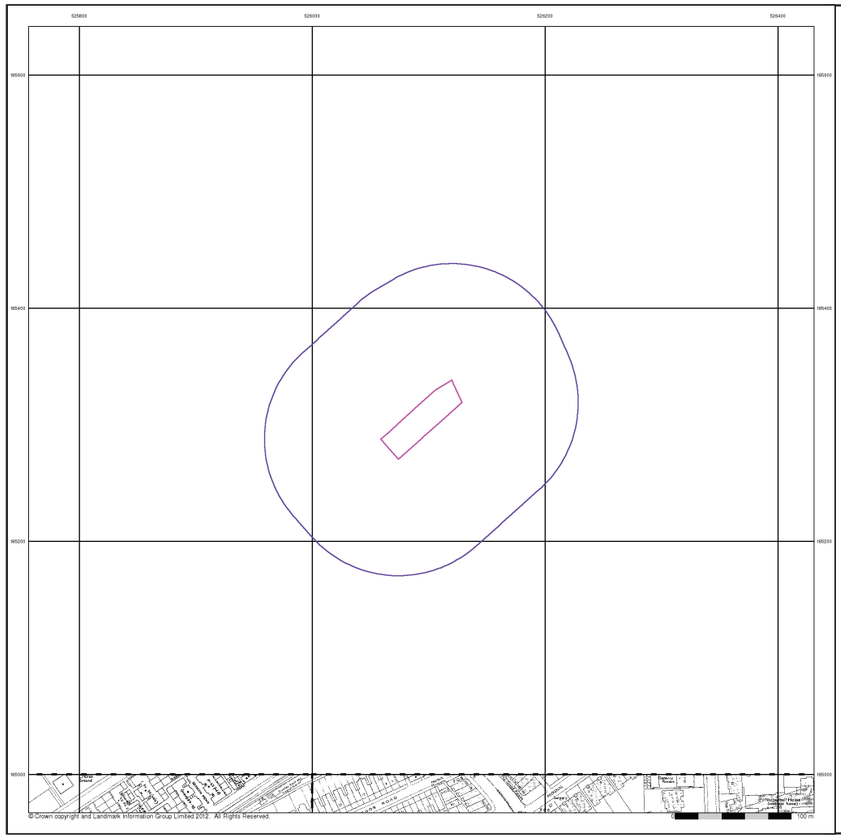


Envirocheck®

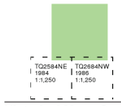
Additional SIMs

Published 1984 - 1986

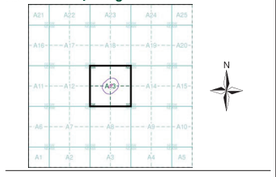
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	44952871_1_1
Customer Ref:	13/20316
National Grid Reference:	526090, 185300
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Site Area (Ha):	0.18
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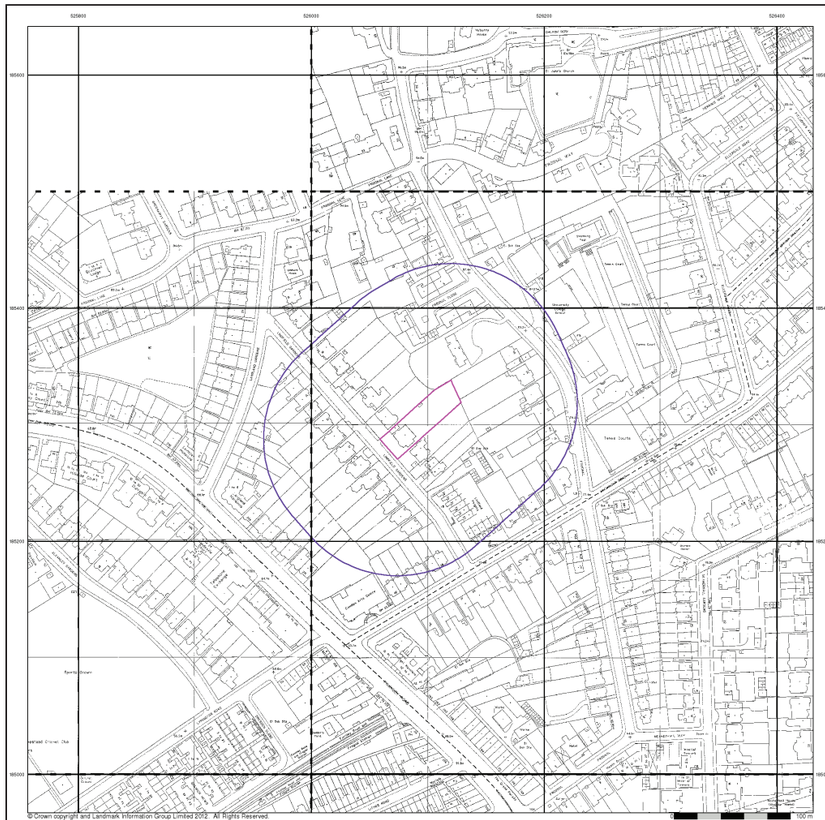
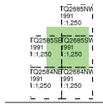


Envirocheck®

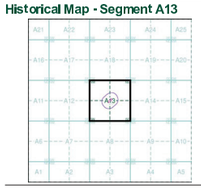
Large-Scale National Grid Data
Published 1991
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1995. These maps were the forerunners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



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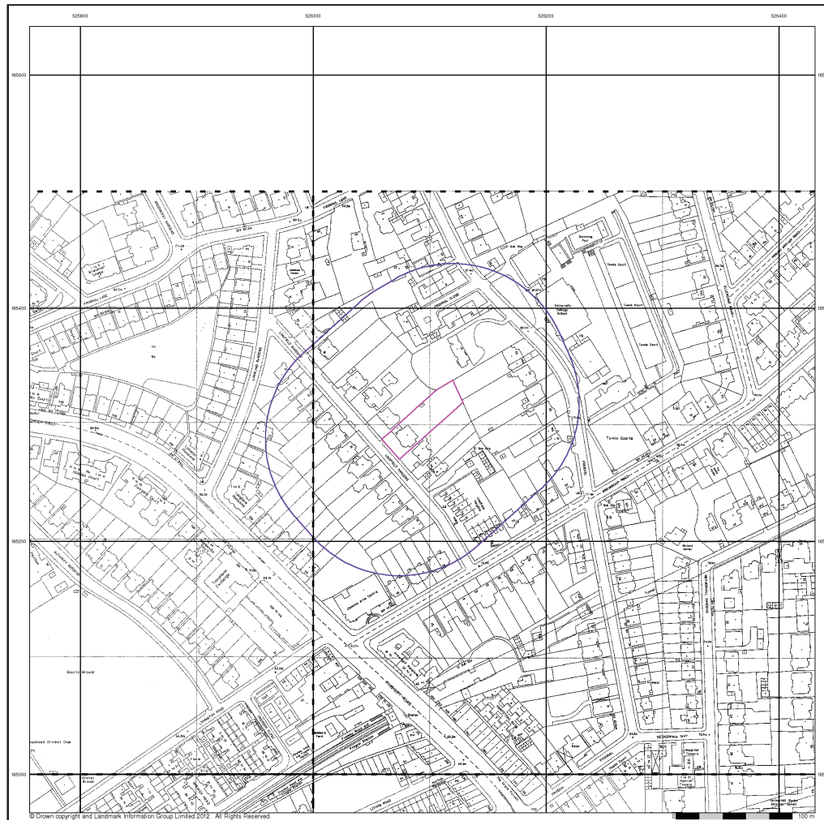
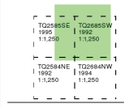


Envirocheck®

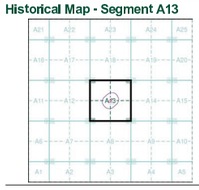
Large-Scale National Grid Data
Published 1992 - 1995
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1995. These maps were the forerunners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



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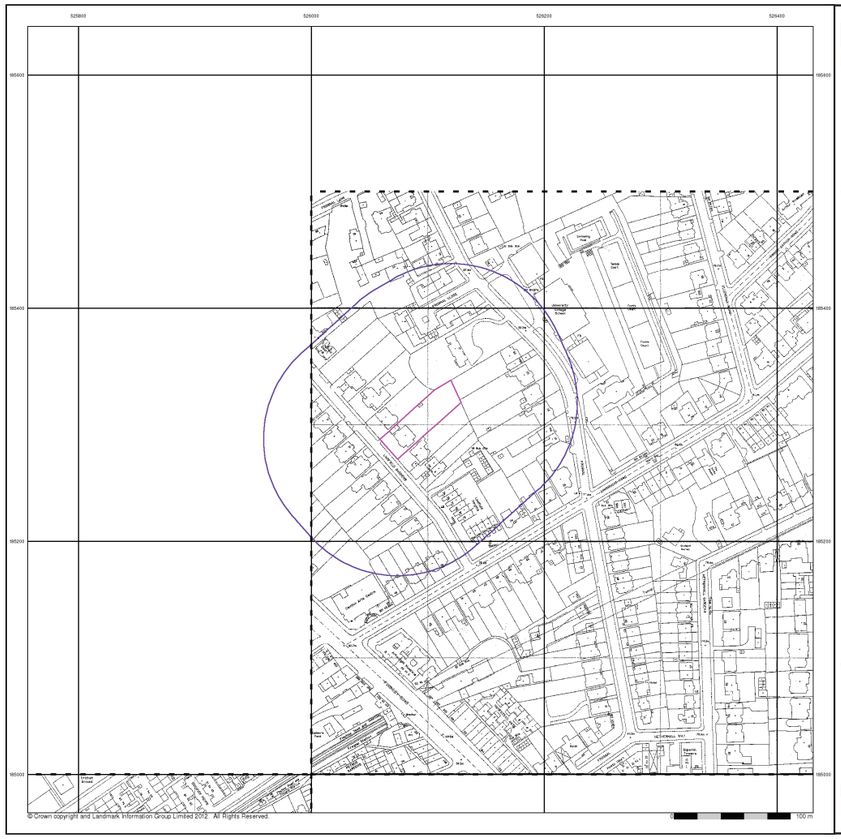
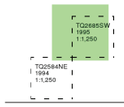


Envirocheck®

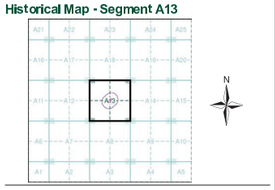
Large-Scale National Grid Data
Published 1994 - 1995
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1995. These maps were the forerunners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



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7.0 Sewer Records

Asset Location Search Sewer Map - ALS/ALS Standard/2013_2430864 | **TQ2685SW**

The width of the displayed area is 450m and the centre of the map is located at OS coordinates 526081,185294

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
9302	80.73	74.59
0302	89.8	87.09
1401	88.72	85.96
1402	86.98	n/a
1403	86.35	80.51
1404	88.07	n/a
8403	84.4	n/a
9401	88.18	79.78
9402	91.32	86.21
auto	n/a	n/a
0403	93.85	n/a
8501	88.65	83.83
1501	94.18	88.8
3201	n/a	n/a
3202	n/a	n/a
82BF	n/a	n/a
82CA	n/a	n/a
82BG	n/a	n/a
8101	58.41	54.41
82BH	n/a	n/a
82BI	n/a	n/a
9201	n/a	n/a
9206	n/a	n/a
9207	n/a	n/a
auto	n/a	n/a
0201	79.17	71.93
0001	61.45	58.7
1301	89.91	87.74
1101	n/a	n/a
1102	70.36	64.86
2302	n/a	n/a
2203	n/a	n/a
2101	69.04	62.55
2210	n/a	n/a

ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

- **Foul:** A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
- **Surface Water:** A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.
- **Combined:** A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.
- Trunk Surface Water
- Trunk Foul
- Storm Relief
- Trunk Combined
- Vent Pipe
- Bio-solids (Sludge)
- Proposed Thames Surface Water Sewer
- Proposed Thames Water Foul Sewer
- Gallery
- Foul Rising Main
- Surface Water Rising Main
- Combined Rising Main
- Sludge Rising Main
- Proposed Thames Water Rising Main
- Vacuum

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

- Air Valve
- Dam Chase
- Fitting
- Meter
- Vent Column

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

- Control Valve
- Drop Pipe
- Ancillary
- Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

- Outfall
- Undefined End
- Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

- Public/Private Pumping Station
- Change of characteristic indicator (C.O.C.I.)
- Invert Level
- Summit

Areas

Lines denoting areas of underground surveys, etc.

- Agreement
- Operational Site
- Chamber
- Tunnel
- Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

- Foul Sewer
- Surface Water Sewer
- Combined Sewer
- Gulley
- Culverted Watercourse
- Proposed
- Abandoned Sewer

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.

2) All measurements on the plans are metric.

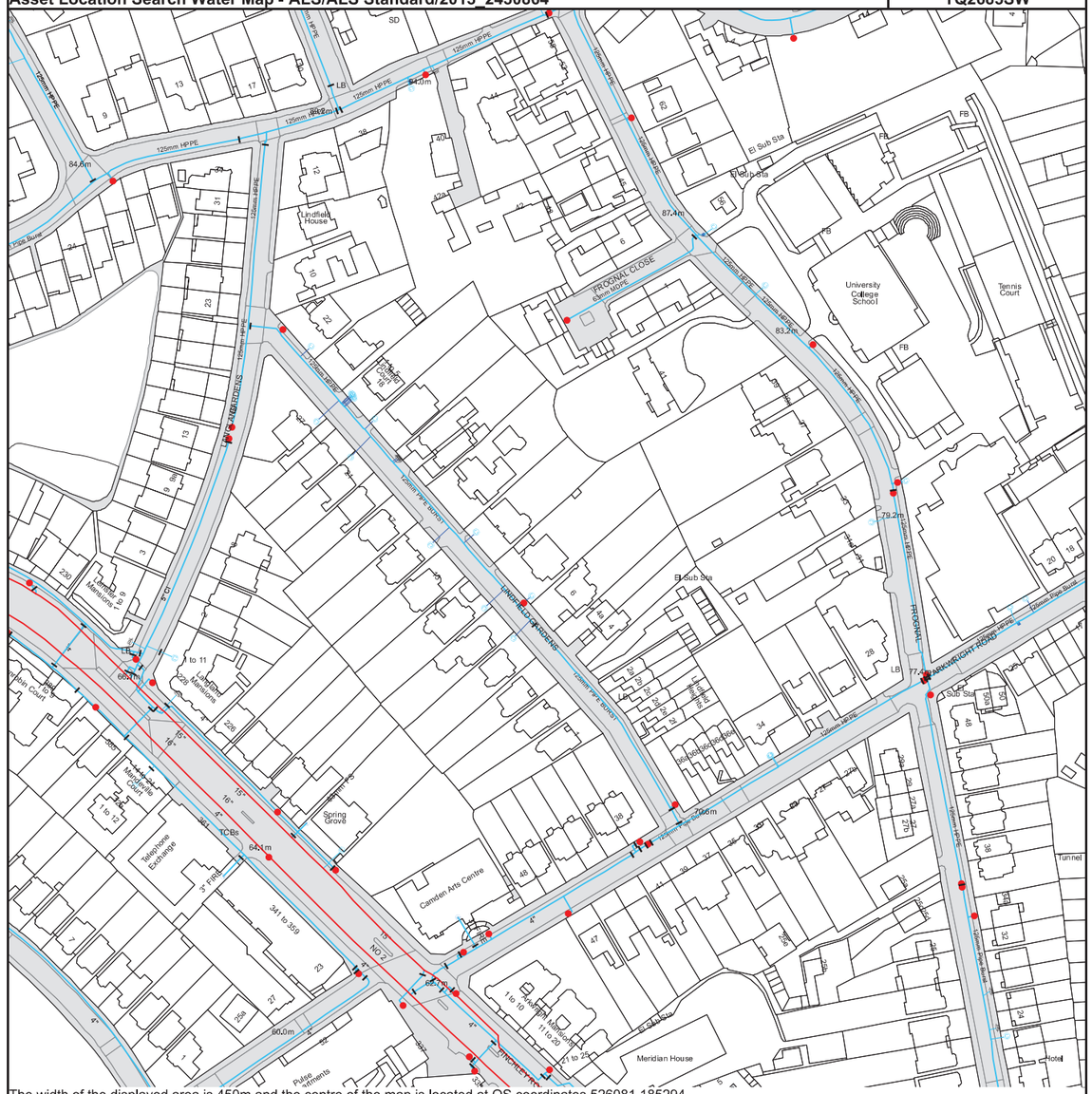
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.

4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

5) 'na' or '0' on a manhole level indicates that data is unavailable.

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Insight on 0845 070 9148.

Asset Location Search Water Map - ALS/ALS Standard/2013_2430864 | **TQ2685SW**



The width of the displayed area is 450m and the centre of the map is located at OS coordinates 526081,185294

ALS Water Map Key

Water Pipes (Operated & Maintained by Thames Water)

4"

Distribution Main: The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.

16"

Trunk Main: A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.

3" SUPPLY

Supply Main: A supply main indicates that the water main is used as a supply for a single property or group of properties.

3" FIRE

Fire Main: Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.

3" METERED

Metered Pipe: A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.

Transmission Tunnel: A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.

Proposed Main: A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

PIPE DIAMETER	DEPTH BELOW GROUND
Up to 300mm (12")	900mm (3')
300mm - 600mm (12" - 24")	1100mm (3' 8")
600mm and bigger (24" plus)	1200mm (4')

Valves

- General Purpose Valve
- Air Valve
- Pressure Control Valve
- Customer Valve

Hydrants

- Single Hydrant

Meters

- Meter

End Items

Symbol indicating what happens at the end of a water main.

- Blank Flange
- Capped End
- Emptying Pit
- Undefined End
- Manifold
- Customer Supply
- Fire Supply

Operational Sites

- Booster Station
- Other
- Other (Proposed)
- Pumping Station
- Service Reservoir
- Shaft Inspection
- Treatment Works
- Unknown
- Water Tower

Other Symbols

- Data Logger

Other Water Pipes (Not Operated or Maintained by Thames Water)

Other Water Company Main: Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.

Private Main: Indiates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.

Sewer Flooding

History Enquiry

History of Sewer Flooding

Is the requested address or area at risk of flooding due to overloaded public sewers?

The flooding records held by Thames Water indicate that there have been no incidents of flooding in the requested area as a result of surcharging public sewers.

Although Thames Water does not have records of public sewer flooding within the vicinity, please be aware that property owners are not legally obliged to report this flooding to Thames Water. In addition flooding from private sewers, watercourses and highways drains are not the responsibility of Thames Water, and such incidents may not be noted in our records. We therefore strongly advise you to contact the current owners and occupiers of the premises and inquire about sewer flooding.

For your guidance:

- A sewer is "overloaded" when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
- "Internal flooding" from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- "At Risk" properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company's reporting procedure.
- Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At Risk Register.
- Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- For further information please contact Thames Water on Tel: 0845 9200 800 or website www.thameswater.co.uk

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8.0 Response to Stark Associates Report

9.0 Response to Stark Associates Report

During the previous planning application for the above project a report was written by Stark Associates which raised some concerns with the proposed scheme. We have read this report and feel that the concerns are unfounded and are unrelated to planning issues. We have therefore included our comments and response to this report below.

Stark's comments on the proposals are given using the same numbering system as the original report. Elliott Wood responses to those comments are shown in bold type.

6.1 From the property grid reference and geological maps, the soil appears to be London Clay. However mapping is not accurate and variations in the actual soil conditions can exist. It is also worth noting that geological maps can only give an indication of the soil in an area – there is a margin of error that should be allowed for of approximately 2m. This is particularly relevant since the site geology borders the Claygate beds. At this time a limited site investigation has been carried out and it is possible that Claygate beds may be found on the site.

SAS notes that the Claygate member was not encountered. Three boreholes confirm the underlying ground conditions.

This would affect the design and construction proposal. A worst case condition should always be taken and the design proposal should take this into account. This scenario should include for such issues as water flows, loss of fines and slope stability issues. At this time this has not been done.

SAS report and groundwater BIA covers water flows, loss of fines (not relevant) and slope stability as part of the screening and scoping process of the BIA.

6.2 No trial hole investigations have been carried out for the existing foundations to the existing garden wall with No 6 Lindfield Gardens. No investigations nor assessment of the neighbouring properties have been conducted in particular to the other flats within the building and the neighbouring property at No 10 Lindfield Gardens. This is important in order to assess what the damage is likely to be the neighbouring properties.

Access was not available to the flats so a worst case scenario has been assumed when considering the likely damage to the flats. The same is true of the existing foundations to the garden wall with No. 6 Lindfield Gardens. We have assumed shallow brick corbelled or concrete footings which would be the worst case. No trial hole was therefore necessary.

6.3 No investigations have been carried out to determine the construction/layout/extent/rear wall and foundations to the existing lower ground floor flat (flat A) at the front of the property. By virtue of the existing ground levels this flat cuts into the ground and the rear wall of the flat will be very close to the proposed basement. As such this flat and in particular the rear wall could be significantly affected by the proposed works. This could affect the structural stability of this flat and the building as a whole. The applicant has not dealt with this.

Access is not available to determine exactly the construction etc. of Flat A or the other flats. We have therefore assumed the worst case scenario where the furthest wall is underpinned assuming this underpinning will be a retaining wall. The underpinning is approximately 6 metres from the rear wall of flat A and the central spine wall of the house.

If flat A extends to the further rear of the property there will be no need to underpin, in any case.

It should also be noted that the new basement works are not excavated below the lowest foundations of Flat A.

We consider that this has been dealt with appropriately and that the structural stability of Flat A or the building as a whole will not be compromised.

6.4 Architect's Drawing D 001/B1 and D002/B1 shows a space where there is currently another flat (flat A) below the applicant's flat but fail to give any details about the area. No investigations testing nor details of the area below has been provided. This lack of information could increase the risk of damage to this flat and also neighbouring properties above the applicant's development which have also not been investigated.

See above.

Architect's drawing D001/B1 and D002/B1 also indicate an area of soil in between the existing lower ground floor flat (Flat A) and the proposed new rear basement extension. The soil in this area is likely to be fill and loose. It will be highly susceptible to movement/collapse. This is likely to put at risk the structural stability to not only of flat A but also the flats above. Coupled with this potential soil movement there will be potential for changes in the ground water flow (not presently known). This could cause damp to the existing flat A and in a worst case flooding into flat A. Additional ground stresses could also be placed on this flat which could lead to damage. The developer's engineer has failed to deal with these very important issues putting at greater risk these neighbouring properties.

The area of the ground beneath the applicants flat and adjacent to Flat A may be loose ground. However, this is not relevant to the proposals. The intention is to underpin the rear wall and retain this ground. It will not therefore be disturbed by the works.

Flooding is not relevant since there is no evidence of water in the reports at level less than 7.2m below ground. If anything the underpinning will reduce the likelihood of groundwater causing an issue for Flat A since ground water will be forced to flow around the building.

Investigations are required to establish the soil conditions in this area along with details of the existing internal foundations and ground slab. These factors will affect the structural stability of the building and the existing tenants of the building above this flat. The applicant has also failed to consider the internal structural alterations that are being proposed. This is essential in order to determine whether the scheme is viable.

Soil conditions have been investigated however and are accurately specified in section 3.2 of SAS report and in so far as it is not possible to investigate internal foundations at this stage. These matters will, however, be dealt with during the Party Wall Award process.

The internal structural alterations are considered no part of their impact on the basement proposals. We have referred to the requirements for temporary and permanent works in our method statements and drawings. The detail design of these works will be considered as noted above during the Party Wall process.

In order to minimise the risk of structural damage, damp and flooding the issues we have highlighted must be dealt with and included in the construction method statement. The applicant has not done this yet.

This information is an essential part of the planning process and Basement Impact Assessment (BIA) in order for the planning authority to assess the acceptability of the scheme (DP 27.5). It is also essential in order for the method of construction of the scheme to be determined and importantly to assess any likely damage to neighbouring properties. Without this assessment being carried out, no meaningful report or analysis can be done. The applicant has failed to deal with this adequately.

An assessment of the risk of damage is now included in the BIA as is further reference to the temporary and permanent works. A cross section has been included to highlight the actual situation as we understand it.

This has been included but we would firmly dispute that these matters have not been adequately dealt with.

6.5 Only a limited analysis of the actual soil conditions has been carried out. The applicant has assumed London Clay but this is a generic term. The soil conditions in Hampstead / Belsize Park and surrounding areas are

highly variable. Indeed the clay itself varies in consistency significantly depending on the level of silt and sand present. The soil condition will affect the design characteristic of the material and increase the risk of ground movement and / or ground water movement and flooding, movement and subsequent damage to neighbouring properties. Any basement development in particular a large one such as this can be detrimental to the environment and the adjacent buildings. The applicant has ignored the uniqueness of the soil conditions in Hampstead.

We do not agree that actual soil conditions have not been analysed. A full site investigation and analysis was included with the BIA.
The impact of the proposals have been fully explained in all the various site investigations, screening and scoping processes as required by the CPG4.

We have however now supplemented this by additional soils analysis, slope stability and damage assessment.

6.6 No contamination testing of the soil, hardcore or ground water has been carried out as required by DP 27.4. This is important as one of the results of the construction of a basement is an increased risk of ground water movement and flooding. In addition, assessment must be made not only of the construction but also of the method of disposal of the soil and possible harm to the environment. The applicant's report recommends that this is carried out but the applicant has not done this.

Contamination has been included as a desk study within the reports. It is known that ground water is not present at high level so contamination is not an issue,

At construction stage it is usual for excavated ground to be tested prior to removal but the risks of contamination of the ground in this predominately residential area remain very small.

6.7 A bore was drilled in March 2013 and a ground water level was recorded. The report recommends that "due to possible unforeseen ground conditions" monitoring water levels up to at least the start of the development is undertaken. The applicant has ignored this advice. No monitoring of water levels over an extended period of time has been carried out. Ground water flow has also not been assessed.

Water was monitored over a period of time and was found to be approximately 7m below ground. Groundwater is therefore not relevant. This was also fully covered by the ground water section of the BIA screening process. An additional borehole with water level recorded is now part of the supplementary report.

Due to the presence of below ground water course in Hampstead and the very leafy green environment we would expect water to be in evidence. It is a requirement of DP 27 to establish changes during the seasons and also the likely effect of the construction in terms of risk of damage and movement of neighbouring properties. This assessment should be carried out in the short term and in the long term. The applicant has done this.

See above. Monitoring of groundwater has been carried out over the long term. Levels of ground water have been found to be lower than the proposed excavation and therefore not significant in this case.

6.8 The applicant's engineer advises that the soil is London Clay and as such they state that it will be impermeable. This is subject to the characteristic of the soil/clay on the site which as yet has not been assessed. Notwithstanding this, hydrologic movement of water can occur at the top of the clay surface which will act as a drainage path for the water. It is also common in the area for water to pass through fissures within the clay soil. At this time this has been ignored.

Furthermore the construction of the basement will alter the ground water flow which may increase the risk of flooding to the existing lower ground floor flat (flat A) (see item 6.4 above) and also the adjacent properties and their existing basements/coal cellars.

See above. It is also worth pointing out that Arup's Subterranean Development Scoping Study on groundwater flows is negligible as groundwater will find an alternative route if blocked by subterranean structure.

The prosed basement runs down the side of the property with No 10 Lindfield Gardens. This will restrict the flow of ground water here. Please refer to the Arup report dated November 2010, figure 23. By reducing the vegetation in the garden, the ground water level will increase. The effects of possible heave have not been considered. A full assessment of this is required to be made and presented but to date this has not been submitted by the applicant.
It is difficult to understand the issue raised here. The proposed basement is only an extension of an existing basement. The groundwater, if present, has to flow around the existing basement anyway.

The removal of the vegetation will have very minimal impact on the amount of water taken from the ground. Heave has been considered. Celcore heave protection has been shown to the u/s of the new basement slab.

No modelling of the effects that a basement development will have on water flow adjacent to the works has been carried out. Site ground water monitoring and flow measurements over a realistic timescale must be carried out.
Ground water has been considered and found to not be significant. Refer to Groundwater Impact Assessment.

6.9 Hampstead and the surrounding areas are subject to underground streams, watercourses and tributaries. This can make the ground very unstable and change the characteristics of the soil thereby greatly reducing its load carrying capacity and its resistance to lateral movement and also augmenting the damage to adjacent ground and buildings.

Refer to response to 6.8 above.

Figure 11 of BIA an extract of Barton – Lost Rivers of London indicates a watercourse very close to the applicant's property. I appreciate that the water course is shown just to the North of the site but this is diagrammatic and spring lines could very possibly be on or very close to the applicant's property. At this time the applicants engineer has not taken this in to account but it could have a significant effect on the works. No specific investigation nor assessment nor allowance for this has been made and DP 27.3, DP27.7 requires it.

Refer to response to 6.8 above and other comment throughout the various reports.

6.10 The applicant's acknowledges that the site is on a significant slope. It is unclear whether this is due to natural terracing or backfill. This could alter not only the design and construction but also increase the risk of both the long and short term damage to the neighbouring properties. This requires further investigation prior to planning permission being sought.

The site is not on a significant slope. According to Arup's own assessment it is 7º and therefore lower than that deemed necessary to be considered in the slope stability screening process.
However it has been considered at this stage and found not to be an issue. Refer to slope stability scoping and screening study and in supplementary SAS report.

6.11 The applicant's drawing do not show the neighbouring properties both within the building and adjacent to the building) adequately. This is especially important given the significant structural alterations and basement works being proposed. Without this information the applicant cannot make any assessment of the likely damage to the neighbouring properties. This may be the likely damage to neighbouring properties. Given the nature and extent of the works this is essential.

Neighbouring properties at No .6 and No. 10 have been shown and considered in the design. We have added a further section to indicate the remainder of the building itself.

6.12 The applicant's drawings show that the new basement will be for bedrooms without any natural light. It is questionable whether this is acceptable to planners. There is also the risk of flooding and the issue of inadequate means of escape.

It is not possible to take a view on what the planners will accept. This is a matter for the Architect and the Planners.

Should roof light be installed there is also the issue of light pollution on the existing upper flats which would also need to be considered.

Refer to response to 6.12 above

6.13 The proposed extension will mean a loss of garden and create an additional 88m2 of roof. It is unclear how the increased rainwater runoff will be dealt with and whether this is acceptable to the Camden Council.

Refer to the surface works screening process. An attenuation system will be included as identified in the screening process.

6.14 The applicant has not submitted a Construction Management Plan (CMP) – CPG 6. DP 27.4 may require one to be carried out. The CMP should include clear details as to how the works are to be carried out, timescale, detail of deliveries/ lorries to be used/skips etc., any proposed parking restrictions, working times, noise levels (which will be significant) etc.

CMP plan to be provided.

We would point out that if the owners of the neighbouring properties are at home during the day, then they will be greatly affected by the works if planning consent is given. The time scale and programming of any work may therefore of even greater importance. Camden Council is duty bound to consider not only the rights of a homeowner to carry out works to their property but the loss of amenity and disruption to the owners of the neighbouring properties.

6.15 The applicant has only submitted details of the construction. The construction sequence and timescale have not been provided. Timescale is particularly important in terms of the development of basements for establishing the short term and long term movement and risk involved. Presently the ground is stable and at rest. The proposed work will alter that.

Construction sequence has been provided but further approximate time scale have been added.

As any basement is excavated the surrounding ground will start to move and settle. This could involve movement of soil from below and adjacent to the neighbouring properties in particular the existing lower ground floor flat, flat A and below the existing party wall garden walls. This could cause damage. An accurate assessment of the proposed method of work, timescale and the potential damage has not been carried out.

Refer to damage assessment report.

6.16 The applicant has not indicated the volume of soil which needs to be removed from site. This will need to be transported away by road. Even on its own this is very significant. However, the applicant needs also to fully take into account the quantity of concrete and other materials deliveries which will be requires and also the considerable quantity of other waste requiring transportation to and from the side by road. The applicant's proposal will have an impact on the amenity of others and cause major disruption during the construction phase in the neighbouring area which is largely residential. This needs to be considered within the applicant's construction management plan.

Refer to CMP.

6.17 As part of the works, existing concrete and also other materials will need to be broken out. This will be very disruptive and noisy and could increase the damage to the neighbouring properties. Less destructive method should be considered including the use of diamond saw cutting to disconnect the slabs. This should be dealt with within the CMP.

Refer to CMP.

6.18 The applicant alludes to the need for temporary propping and supports but the applicant has not shown any details at all nor calculations or details. This is intrinsic to any method statement for the works. No details of how the propping will be monitored and adjusted to suit conditions are provided. This is essential to ensure the stability of the neighbouring properties and to determine the degree of damage to neighbouring properties (in particular the lower ground floor flat (Flat A) and others within the building). Without this information being provided as well as calculations, no meaningful assessment can be made as to whether the scheme is viable and the level of risk and damage to the neighbouring properties.

Calculations of temporary works are not appropriate at this stage but will be necessary as part of the Party Wall Awards. All matters associated with the works including monitoring, detail design of temporary and permanent works as well as contractors detailed method statements will have to be approved by the Party Wall Surveyors and their engineers prior to the works starting.
The comments noted are not relevant at this stage.

6.19 The applicant advises that Lindfield Gardens was not affected by the flooding events in Camden in 1975 and 2002. However that does not mean that there will not be a problem in the future. The applicant needs to take into consideration to increase risk of flooding as a result of rerouting of groundwater. Site water monitoring and ground water flow monitoring is required.

Note should also be taken of the natural slope in the ground. Water reportedly already flow from the rear gardens down onto Lindfield Gardens and then along Lindfield Gardens onto Arkwright Road. The applicant needs to take this into account as well as factoring in changes in the ground water flow which the basement development will create. As this time this has not been done.

Refer to ground water assessment screening study. We cannot comment on whether water "reportedly" already flows from the rear grounds down onto Lindfield Gardens.

As discussed above the applicant's drawings shows the new basement will be for bedrooms the risk of flooding and escape should be considered.

6.20 The applicant has not taken account of trees and vegetation on the neighbouring properties. These must be carefully shown and taken into account. DP 27.10 clearly upholds the importance of the trees/vegetation not only on the site itself but on adjacent properties. Camden Council requirements (DP 27) are quite clear that where there are trees on or adjacent to the site an arbourist's report is required. Protection of the vegetation during the works should be ensured to assure their long term protection. Details must be submitted.

The impact on the trees is for the Architect/ Arboriculturalist to comment.

6.21 There is concern with the logging of the vegetation on the site. The architect's drawings do not appear to agree with the arbourist's details which are not to scale. This being the case damage to the trees may occur and this needs to be re-address. It is unclear what replanting to replace lost trees and vegetation will be done.

For the Architect/ Arboriculturalist to comment.

I recommend that as freeholder you instruct your own arbourist to carry out you own specialist report. If you require my assistance with this please let me know. You should advise the LA if you are going to do this. You should as necessary provide them with a copy along with their findings.

6.22 Furthermore the arbourist's report states that "the re-construction of the first level retaining wall shall be constructed at no less than 9.5m from the centre of the stream of T1" but from the architect's drawing D002 the remaining wall and steps will be within this area and also tree T4.
For the Architect/ Arboriculturalist to comment.

6.23 As a result of the basement construction, root growth from trees/vegetation close by will be restricted and/or the roots redirected. Account should be taken of this with the increase risk of damage to neighbouring properties with shallower foundations.
For the Architect/ Arboriculturalist to comment.

6.24 There is a substantial number of trees and vegetation close to the proposed works and these may affect the applicant's proposed new foundations. The applicant talk about large roots being found but ut is the fine ground roots which are the feeder roots which extract significant water from the ground and which have the potential to cause significant damage. A building inspector will ask for the bottom of foundations to be at least 600mm below the lowest roots. For this reason we consider that the prosed foundation may be within the zone of influence and therefore the foundation may be realistic and a piled foundation may be required. Should this be the case the design proposed will fundamentally change.
We are not clear what the issue is here. The underpinning by its nature will be much deeper than the existing roots of any trees extending at least a storey below the current level of footings. A piled foundation is not therefore required or appropriate.

6.25 I understand that in 1997 the building suffered subsidence and as a result of this remedial works were carried out in 2011/2012. The applicant should make reference to this and take this into account. At this time it appears that this has not been done.
We have no evidence of this. It would not in any case make this worse since we would be underpinning to a lower level.

6.26 The applicant's proposal is very close to the brick/render party fence walls and in particular the one with 10 Lindfield Gardens which is high. At present it is covered with vegetation and so a full examination could not be carried out. An inspection from both sides of the wall is essential. It is likely that the wall may not be in the best condition and as an absolute minimum safety measures/propping may be required. I am also concerned that buttressing to the wall and soil will be moved thereby putting at risk the structural stability of the wall. The existing foundations are minimal and as such this wall in particular may need to be underpinned. The applicant has not dealt with this at all and thus the risk due to the works has not been factored in. It is important that this is included as part of the applicant's BIA.
Damage risk assessment is now included and indicates "very slight" risk of damage

Furthermore proposals are to remove soil from behind the party wall/remove buttressing but no inspection level of ground levels on the neighbouring properties has been carried out and no design checks carried out. No details of temporary works have been included. This could affect the structural stability of the wall and neighbouring property. This is an essential part of the BIA which the applicant has ignored.

The proposed underpinning will be to a significant depth of over 3.5m. The engineer has not provided a design. Where underpinning is proposed it will need to be designed as a retained structure and special attention must be given to lateral movement, surcharges loading and uplift (short term and long term). The engineer also fails to consider differential settlement. All of this may have serious implications for the neighbouring properties. This should be dealt with as part of the BIA.
Detailed design of the underpinning is not required at this stage but will be necessary as part of the party wall awards. Differential settlement is not relevant since the underpinning will bring all footings including the existing to the same foundation level.

6.27 An underpinning scheme has not been produced. A detailed study needs to be carried out in relation to excavation of the soil/removal from site etc.

No levels nor dimensions are shown on the architect's drawings for this property or the neighbouring properties. It is clear that the underpinning will be very deep at about 3.5m. We express our concern that this has not been considered adequately. We are concerned that no design has been carried out and ground movement lateral movement and uplift have not been considered adequately. This risk of different movement will be significantly increased. We also express concerns with tree and vegetation roots and the loss of trees/vegetation in the area which will increase the ground water levels.

6.28 In addition to the basement works the applicant proposes to carry out extensive alterations and other works throughout the property which may reconfigure and / or concentrate loading. At this time it is unclear how these will affect the structural stability of the building and /or the adjacent buildings. This should be carefully calculated and an assessment made. A holistic design is an essential part of the BIA. The applicant has not done this.
Detailed design of the works is not needed at this stage. However, further information has been included in the drawings.

6.29 No study of the proposed construction has been undertaken. Such a study must take into account the result of a full soil investigation, ground water assessment, modelling etc. This is required for Camden Building Control to evaluate damage to the neighbouring properties (DP 27.5). This is particularly important in the context of these properties which form an intrinsic element of the conservation area.
Refer to damage risk assessment

6.30 The applicant's engineer has not calculated nor advised on what the damage to the neighbouring properties will be. We have already highlighted a number of deficiencies with the applicant's submission which means that he cannot assess the likely damage. Only when the applicant has considered all the issues, carried out the further investigations and testing and carried out a full design taking worst case conditions can an assessment of likely damage be made. A cracking damage assessment should be made in accordance with the Burford scale.
Refer to damage risk assessment

7.0 Conclusion

From the above it is clear that applicant's design team have underestimated the possible problems and that further works are required which should include the following: -

7.1 Site investigation and analysis to include for the effects of the development on the existing building in particular the ground floor flat (Flat A), the party garden walls and the retained ground. Additional site investigations, testing, analysis, reporting and a full design are required.
Further site investigations including a damage assessment report are now included.
Full design is not appropriate at planning stage.

7.2 Show in more detail the constriction and layout the properties behind and above the proposed development (flat A and flats 2-5). Also investigate the soil between Flat A behind and the proposed development and full implication of the works.
Access to carrying out this additional investigation is not possible or necessary as previously noted.

7.3 Show in more details the neighbouring properties in particular No 10 Lindfield and party wall. The ground levels/vegetation and construction need to be understood more fully so that assessment of likely damage can be made. Additional measure to avoid this damage may need to be taken.
Neighbouring properties were shown but additional sections now included.

7.4 Trees/vegetation and ground levels to adjoining properties should clearly be shown and taken account of. An assessment of the loss of trees on ground water needs also to be made and the effect of heave. Details of replanting should so be shown.
Refer to previous comments with response to trees.

7.5 Borehole water monitoring over an extended period is required.
Monitoring is contained in the supplementary report.

7.6 Testing of samples for contamination is required.
Not at this stage. A desk study has been carried out. Risk of contamination has been found to be very small.

7.7 Water flow and modelling around the proposed basement to be carried out taking into account ground water and spring lines etc.
Refer ground water screening report.

<u>Summary of Responses to Stark Associates Report</u>

We strongly repute the suggestion that the Basement impact assessment is in some way inadequate. It conforms precisely with the screening and scoping studies of CPG4.

The screening and scoping studies have found the proposals to be acceptable under the terms required by CPG4.

Further evidence of the adequacy and acceptability of the proposals is contained in additional reports.

Many of the comments made are not appropriate at the planning stage and will be dealt with during the Party Wall Awards process and when obtaining Building Regulations Approval.

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